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| 10/524,037 | 02/09/2005 | Kai Schumacher | 264681US0XPCT | 4865 |
| 22850 | 7590 | 05/05/2009 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER LIAO, DIANA J | |
| | | | ART UNIT 1793 | PAPER NUMBER |
| | | | NOTIFICATION DATE 05/05/2009 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/524,037

Applicant(s)

SCHUMACHER ET AL.

Examiner

DIANA J. LIAO

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 6-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 1/16/2009

DETAILED ACTION

Election/Restrictions

1. This application contains claims 6-18 drawn to an invention nonelected with traverse in the reply filed on 6/23/2008. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 1/16/2009 was filed after the mailing date of the first action on 10/16/2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102 and 103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fitzgerald, et al. (US 5,623,028).

Fitzgerald '028 teaches a fumed or pyrogenic silica filler for a rubber. (col 4, lines 38-40) The surface hydroxyl content of the silica is controlled in order to achieve desired properties. (col 1, lines 5-13) For example, if the silanol density is high, the sealing force percentage of the rubber that the filler is in is low. (Table 3) In the examples, silica of 4.5 OH/nm² is treated to obtain silica with surface silanol densities ranging from 2.60 to 3.85 (Table 2), with several examples, including 3.85 OH/nm², falling within the claimed range. A preferred composition contains a fumed silica filler with a surface area from 90-400 m²/g with the silanol density controlled. (col 8, lines 19-26) This surface area range falls within the claimed range.

The teaching of fumed silica or pyrogenic silica in Fitzgerald '028 is found to fairly teach the limitation of a silica produced by flame hydrolysis, which is a product by process limitation.

Fitzgerald '028 does not specifically teach that the hydroxyl density is from 3 to 4.7 OH/nm² as measured by the lithium aluminum hydride method in Mathias, et al.

However, there is no clear evidence on record showing that the hydroxyl density values of Fitzgerald '028 are not equivalent to measurements by any other method.

Therefore, claims 1, 4, and 5 are not found patentable over the prior art.

7. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzgerald '028 as discussed pertaining to claims 1, 4 and 5 above, in view of Mangold, et al. (US 6,328,944) and optionally Mangold, et al. (US 6,423,331).

Fitzgerald '028 does not teach a doped silicon powder.

Mangold '944 teaches pyrogenically prepared metals of doped with at least one doping component at 0.00001 to 20 wt.%. The surface area of this doped oxide is 5-600 m²/g. (col 1, lines 30-40) Silicon dioxide is one of the metal oxides encompassed in Mangold '944. (col 3, lines 5-8) The doping components are distributed almost homogeneously in the pyrogenically prepared-oxide. (col 3, lines 15-17) This is found to fairly teach or suggest a mixed metal oxide. The materials created may be useful for applications such as additives in the silicone or rubber industry. (col 3, lines 30-36)

One of ordinary skill in the art would be motivated to combine doping with the silica of Fitzgerald '028 in order to create a silica with improved properties. For example, a silica doped with cerium is found to have an improvement in thickening effect in a polyester resin. (col 7, lines 63-65)

Optionally, Mangold '331 also teaches a silicon dioxide doped with silver or silver oxide. The silver is added for bactericidal properties and can be used as a filler in rubber or silicone rubber. (col 1, lines 11-16)

Therefore due to the advantageous effects of doping, claims 2 and 3 are not found patentable over the prior art.

Response to Arguments

8. Applicant's arguments filed 1/16/2009 have been fully considered but they are not persuasive.

Applicant argues that the measurement of hydroxyl density as measured in Fitzgerald '028 is an unreliable value and that Humbert clearly teaches the discrepancy. However, Humbert fails to directly show that the silica in Fitzgerald '028 does not have a hydroxyl density as claimed. The references cited in the arguments merely show that the different methods of measuring hydroxyl density may differ in result, and Aerosil 200 is used as an example. Mathias, et al. also test Aerosil 200, but still leaves uncertainty in the density value as there is also a factor of time which appears to affect the hydroxyl density value. (Table II) Ek, et al. (a copy sent with this office action), also compares the measured OH/nm² measurements using two different methods: 1H MAS NMR and thermogravimetry. The results are outlined in Table 3. The difference between the values is not as drastic as the difference that Humbert teaches, even in the measurements of Aerosil 200. Thus, even if the values taught in Fitzgerald '028 could be overcome by stating that the results were unreliable, the prior art as a whole does not convincingly show that the methods used by Fitzgerald '028 are unreliable.

Applicants argue that Fitzgerald '028 teaches away from the invention because the goal of Fitzgerald '028 is to reduce hydroxyl density and not to raise it, as in the instant invention. Applicant also argues that Fitzgerald '028 creates silica through a different process, utilizing an organically modified surface which is not contained on the surface of the instant invention. However, these features are unclaimed and currently do not hold weight pertaining to the claimed product since method of making steps in Fitzgerald '028 are not excluded. The silanol density of the raw silica in the examples of Fitzgerald '028 also starts at 4.5 OH/nm^2 and reduced, thus, at least the raw silica in Fitzgerald '028 has the required hydroxyl density within the claimed range regardless of if the treatment process of Fitzgerald '028 is applied.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ek, et al. ("Determination of the hydroxyl group density..." 2001).
10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-3592. The examiner can normally be reached on Monday - Friday 8:00am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Ngoc-Yen M. Nguyen/
Primary Examiner, Art Unit 1793

DJL